

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

1. (Currently Amended) A device for injecting a secondary fluid located between two successive upper and lower granular beds to produce and distribute a polyphase mixture between said secondary fluid and a fluid or mixture of fluids originating from the upper granular bed, said device comprising an injection chamber for injecting a secondary fluid, contact apparatus means for bringing said secondary fluid and at least a portion of fluid or mixture of fluids originating from the upper granular bed into contact, and distribution apparatus means for simultaneous distribution of a the mixture resulting from said contact to the lower granular bed, in which said contact and distribution apparatuses are conduits (204) with a substantially constant diameter along their axial length traversing said injection chamber and pierced with orifices (208) over their lateral wall, said device further comprising conduits (206) for the passage of a gaseous fraction of fluid or a fluid mixture originating from the upper granular bed, traversing the chamber in a fluid tight manner, the height of which is greater than the maximum height reached by liquid forming above a plate on the upper portion of the chamber, said plate preventing flow of a liquid fraction of the fluid or fluid mixture originating from the upper granular bed through said conduits.

2. (Currently Amended) A device according to claim 1, in which said secondary fluid is a gas phase at least partially comprised by hydrogen.

3 - 11. (Canceled)

12. (Canceled)

13. (Canceled)

14. (Canceled)

15. (Canceled)

16. (Canceled)

17. (Currently Amended) A device according to claim 1, wherein ~~characterized in that~~ the contact and distribution apparatuses ~~means~~ extend below the chamber by a distance  $h_t$ .

18. (Currently Amended) A device according to claim ~~24~~ 15, in which the distance between the bottom of the conduits (204), ~~tubes or mixer channels~~ and the upper surface of the lower bed is in the range 0 to 50 mm, 0 excluded and the density of the conduits (204), ~~(224)~~ is more than 80 per square meter ~~metre~~.

19. (Currently Amended) A fixed bed reactor, comprising:  
at least one upper bed of granular solids;  
at least one lower bed of granular solids;  
at least one device for injecting a secondary fluid located between the two successive upper and lower granular beds to produce and distribute a polyphase mixture between a said secondary fluid and a fluid or mixture of fluids originating from the upper granular bed, said device comprising an injection a chamber for injecting a secondary fluid, contact apparatus for ~~means for bringing~~ said secondary fluid and at least a portion of fluid or mixture of fluids originating from the upper granular bed ~~into contact, and means~~ and distribution apparatus for simultaneous distribution of a the mixture resulting from said contact to the lower granular bed, said lower bed being located downstream of said fluids;

~~at least one bed of granular solids located downstream of said means;~~

at least one separate line for injecting said secondary fluid into the injection chamber ~~of said~~ means, said separate line being substantially perpendicular with respect to the vertical axis of the reactor, said device further comprising conduits (206) for the passage of a gaseous fraction of fluid or a fluid mixture originating from the upper granular bed, traversing the chamber in a fluid tight manner, the height of which is greater than the maximum height reached by liquid forming above a

plate on the upper portion of the chamber, said plate preventing flow of a liquid fraction of the fluid or fluid mixture originating from the upper granular bed through said conduits.

20. (Canceled)

21. (Currently Amended) A reactor according to claim 19, comprising means for circulating liquid and gas phases through the granular bed or beds in a co-current descending manner ~~dropper mode~~.

22. (Currently Amended) A reactor according to claim 19, wherein a ~~the~~ bed or beds of granular solids comprise at least one catalytic granular solid.

23. (Withdrawn) A process comprising conducting a hydrodesulphurisation, selective hydrogenation or hydrodenitrogenation reaction in a reactor according to claim 19.

**Please add the following new claims:**

--24. (New) A device for injecting a secondary gas, located between two successive upper and lower granular beds, to produce and distribute a polyphase mixture between said secondary gas and a gas/liquid mixture originating from the upper granular bed, comprising a chamber (201) for injecting said secondary gas crossed by a first series of conduits (204) pierced with orifices (208) within said chamber (201) for the injection of said secondary gas, and a second series of conduits (206) crossing said chamber (201) in a liquid tight manner, the upper part of chamber (201) forming a plate for the obtention of a liquid level above this plate, and the height of conduits above this plate being higher than the maximum value of the liquid level, so as to allow gas originating from the upper bed to be injected into lower bed.

25. (New) A device for injecting a secondary gas, located between two successive upper and lower granular beds, to produce and distribute a polyphase mixture between

said secondary gas and a gas/liquid mixture originating from the upper granular bed,

comprising a chamber for injecting said secondary gas, crossed in a fluid tight manner by a first series of mixer channels (224), the upper part of said chamber forming a plate (220) for the obtention of a liquid level above this plate, said mixer channels (224) being pierced with orifices in their upper portion immersed in the liquid, and a second series of conduits (222) for injecting secondary gas from said chamber into the liquid.

**26. (New)** A device for injecting a secondary fluid located between two successive upper and lower granular beds to produce and distribute a polyphase mixture between said secondary fluid and a fluid or mixture of fluids originating from the upper granular bed, said device comprising an injection a chamber for injecting a secondary fluid, contact apparatus for said secondary fluid and at least a portion of fluid or mixture of fluids originating from the upper granular bed, and distribution apparatus for simultaneous distribution of a mixture resulting from said contact to the lower granular bed, said device further comprising conduits (206) for the passage of a gaseous fraction of fluid or a fluid mixture originating from the upper granular bed, traversing the chamber in a fluid tight manner, the height of which is greater than the maximum height reached by liquid forming above a plate on the upper portion of the chamber, said plate preventing flow of a liquid fraction of the fluid or fluid mixture originating from the upper granular bed through said conduits.

**27. (New)** A device according to claim 25, in which the distance between the bottom of the conduits (224) and the upper surface of the lower bed is in the range 0 to 50 mm, 0 excluded and the density of the conduits (224) is more than 80 per square meter.

**28. (New)** A device according to claim 25, in which said secondary fluid is a gas phase at least partially comprised by hydrogen.

**29. (New)** A device according to claim 24, wherein the conduit (204) have a substantially constant diameter along their axial length traversing said injection chamber and pierced with orifices (208) over their lateral wall.

**30. (New)** A device according to claim 25, wherein the conduit (224) have a substantially constant diameter along their axial length traversing said injection chamber and pierced with orifices over their lateral wall.--